

col entity, and transmitted to the MAC-D protocol entity of the SRNC through different logical channels. In the RLC protocol entity operation, a relation indicator is generated to maintain relation between the RLC-PDU and the HARQ-RLC-Control-PDU, and when the RLC-PDU and the HARQ-RLC-Control-PDU are transmitted, the relation indicator may be transmitted along with each PDU. The call process is described **FIG. 10**.

[0082] Next, the MAC-D protocol entity of the SRNC that receives the RLC-PDU and the HARQ-RLC-Control-PDU from the RLC protocol entity of the SRNC transmits them to the MAC-C/SH protocol entity at steps **705** and **706**.

[0083] In here, the MAC-C/SH protocol entity of the CRNC, which receives the RLC-PDU and the HARQ-RLC-Control-PDU from the MAC-D protocol entity of the SRNC, transforms the RLC-PDU and the HARQ-RLC-Control-PDU to the MAC-PDU a and MAC-PDU b, respectively, then schedules the DSCH transport channel to transmit the transformed MAC-PDU a and MAC-PDU b through a transport channel, such as the DSCH. Then the MAC-PDU a and the MAC-PDU b is transmitted to the physical layer of the node B through the transport channel, such as the DSCH at step **707**.

[0084] In here, if the MAC-C/SH protocol entity of the CRNC receives the relation indicator from the RLC protocol entity, wherein the relation indicator means relation of the RLC-PDU and the HARQ-RLC-Control-PDU, with each of the PDU, the MAC-C/SH protocol entity operates process **707** to the RLC-PDU and the HARQ-RLC-Control-PDU of same value.

[0085] After that, the physical layer of the node B which receives the MAC-PDU a and the MAC-PDU b carries out an encoding, a rate matching, an interleaving and a modulation to the MAC-PDU a and the MAC-PDU b, then transforms the MAC-PDU a and the MAC-PDU b to the 10 ms radio frame and transmits it to the receiver through a physical channel, such as PDSCH at step **709**. At this time, the physical layer of the node B receives the TFI1 and the TFI2 of the MAC-PDU a and the MAC-PDU b from the MAC-C/SH protocol entity with each PDU then transmits the TFI1 and the TFI2 to the receiver through the physical channel, such as the DPCH at step **708**.

[0086] **FIG. 8** is a diagram showing a data processing method of a receiver in accordance with the present invention.

[0087] As illustrated in **FIG. 8**, a RLC protocol entity, a MAC-D protocol entity, a MAC-C/SH protocol entity and a physical layer are initialized by a RRC protocol entity.

[0088] The physical layer of the receiver receives the 10 ms radio frame having the MAC-PDU a and the MAC-PDU b transmitted from the receiver through the physical channel, such as the PDSCH at step **802**. The physical layer of the receiver receives the TFCI, which is essential information to carry out the physical layer operation to the RLC-PDU and the HARQ-RLC-Control-PDU at step **803**.

[0089] Next, the physical layer of the receiver transforms the 10 ms radio frame having the TFI2 and the HARQ-RLC-Control-PDU between the TFI1 and the TFI2 received through the physical channel, such as the DPCH, to MAC-PDU through the demodulation, the deinterleaving and the

decoding process, then transmits the MAC-PDU to the MAC-C/SH protocol entity by using a transport channel, such as the DSCH at step **804**. At this time, the 10 ms radio frame having the received TFI1 and the RLC-PDU is stored to the buffer. After that, a data identifier is generated to identify the RLC-PDU stored in the buffer and transmits the data identifier with the transformed MAC-PDU to the MAC-C/SH protocol entity.

[0090] The MAC-C/SH protocol entity receives the MAC-PDU having the HARQ-RLC-Control-PDU, and the data identifier and transforms the MAC-PDU to the HARQ-RLC-Control-PDU then transmits the HARQ-RLC-Control-PDU and the data identifier to the MAC-D protocol entity at step **805**.

[0091] Then, the MAC-D protocol entity, which receives the HARQ-RLC-Control-PDU and the data identifier from the MAC-C/SH protocol entity, transmits them to the RLC protocol entity by using the logical channel such as the DTCH, in case of using the same type of logical channel at step **806**. At this time, in case of using the different type of logical channel, the HARQ-RLC-Control-PDU and the data identifier are transmitted to the RLC protocol entity by using the logical channel, such as the DCCH.

[0092] After that, the RLC protocol entity extracts a sequence number and a version number by interpreting the received HARQ-RLC-Control-PDU and transmits CRLC-HARQ-IND primitive, which has the sequence number, the version number and the data identifier as parameters, to the RRC protocol entity, through a control SAP at step **807**.

[0093] Next, the RRC protocol entity transmits a CPHY-HARQ-REQ primitive of control SAP between RRC and L1 which receives the sequence number, the version number and the data identifier as a CRLC-HARQ-IND primitive through the control SAP between the RRC and the L1 to the physical layer at step **808**.

[0094] The physical layer of the receiver extracts the 10 ms radio frame, which has the RLC-PDU stored in the buffer, and the TFI1 by using a received data identifier, then transforms the 10 ms radio frame to MAC-PDU through the demodulation, the deinterleaving and the decoding process by using the TFI1, the sequence number and the version number, and transmits the MAC-PDU to the MAC-C/SH protocol entity through the transport channel, such as the DSCH at step **809**.

[0095] Subsequently, the MAC-C/SH protocol entity interprets the received MAC-PDU and transforms it to the RLC-PDU, then transmits the RLC-PDU to the MAC-D protocol entity at step **810**.

[0096] The MAC-D protocol entity transmits the received RLC-PDU to the RLC protocol entity through the logical channel such as the DTCH at step **811**. At this time, in case of using the same type of logical channel, the RLC-PDU is transmitted to the RLC protocol entity through the logical channel, such as the DTCH, which is the same channel with the HARQ-RLC-Control-PDU. In case of using the different type of logical channel, the RLC-PDU is transmitted to the RLC protocol entity through the logical channel, such as the DTCH, which is a different channel from the HARQ-RLC-Control-PDU.

[0097] The RLC protocol entity interprets the received RLC-PDU and transmits it to an upper layer at step **812**.